

Private native forestry in new landscapes: challenges and opportunities in New South Wales

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Abstract Understanding the changes occurring within the forestry sector is complicated by socio-economic and demographic changes within rural communities - sometimes in areas where commercial forestry has a long tradition. These changes in some rural communities, particularly coastal New South Wales, appear significant for forestry because land ownership and management are increasingly disconnected from the traditional agricultural land use. There is an increasing population of landowners in 'lifestyle' landscapes who do not appear primarily driven by maximising the profitability of farming. The shift from 'production' to 'lifestyle' landscapes also reflects a transition in community expectations for forestry - a profound change that is likely to require quite different approaches to management. Landholders may be more likely to be interested in forestry with multiple values, including both timber products and environmental services. Furthermore, well-managed native forests that are integrated into individual properties and wider landscapes, may increase the market value of the property, representing a prudent business investment. This paper presents a method for analysing the relationship between rural land values and the estimated agricultural value of typical farms in a number of localities in New South Wales, as a means of interpreting the underlying social values of landholders. It is argued that such analysis can be helpful in identifying changes in community values as a signal that approaches to private native forestry may also need to change to accommodate the aspirations of 'lifestyle' landholders, who may value the aesthetics of native forests more highly than timber production.

Keywords Non-production forests · Change in rural communities · Rural land value · Lifestyle

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New Approaches To Forestry

Forestry is being redefined to meet a broad range of economic, environmental and social expectations in many countries (Beckley 2003; Sands 2005), including Australia (Gerrand et al. 2003; Florence 2005). A feature of this redefinition is the increasing importance of ensuring commercial forestry is consistent with wider community expectations.

Natural and planted forests in Australia have long been recognised as providing benefits other than timber production (e.g. CSIRO 1970), as encapsulated in the National Forest Policy Statement (Commonwealth of Australia 1992). These benefits include protection of water catchments, control of salinisation of rural lands, especially in the Murray-Darling Basin (Kile 2000; Gerrand et al. 2003; Marcar and Crawford 2004), a positive contribution to greenhouse gas amelioration (CSIRO 2004), and maintenance of biodiversity (e.g. Race and Freudenberger 2003; Lindenmayer and Hobbs 2004). These and other benefits feature prominently in such policy instruments developed by the Commonwealth and State Governments as Regional Forest Agreements (that aim to create balance between the environmental, social, economic and heritage values provided by forests), and the Australian Forestry Standard developed in 2002 (Department of Agriculture, Fisheries and Forestry 2003).

The challenge for commercial forestry is to design and manage a suite of forestry segments in an integrated way that reflects the community's expectation for forestry to provide multiple benefits. Difficulties arise because often markets do not recognise or reward forest owners for the range of environmental services to the wider society generated by private forests. Also, commercial forestry may not be the most profitable land-use, adding to pressure for native forests on private land to be cleared for other uses. However, not all landholders with native forests are attempting to maximise the profitability of land use.

In New South Wales (NSW), there are nearly 27 M ha of native forests, with 8.5 M ha on private land (National Forest Inventory 2003, p. 37). Private native forestry supports a significant industry. For the six-year period 1992–1993 to 1997–1998, the total harvest of sawlogs and veneer logs from public forests and private native forests was 8.3 M m³, of which 22% was from private native forests (National Forest Inventory 2003). In 2005, it was estimated that 43% of hardwood sawlogs in NSW were harvested from private forests, and private native forests on the north coast of NSW supplied 268,370 m³ of hardwood sawlogs, injecting about \$100 M in to the regional economy through stumpage payments to landholders which, when flow-on effects were included, supplied about \$210 M of gross output value and more than 2,300 jobs to the NSW north coast economy (The Southern Cross Group 2006).

Even with such economic activity, the forestry sector is undergoing considerable change, as noted by the State Catchment Management Coordinating Committee (2003, p. 8), which reported:

Private native forests on farms represent a substantial and under-utilised resource for farm forestry in NSW. In many areas of NSW, where timber buyers and processors are experiencing contraction in their usual supply, there may be

significant opportunities for private native forestry. Private native forestry provides an immediate entry point for farmers to gain skills and knowledge of farm forestry and financial return from forest products’.

The changing paradigm of forestry in Australia is coupled with profound changes in the socio-economic and demographic characteristics of rural and regional communities, most notably in south-east Australia. The eastern zone of NSW contains most of the State’s 5 M people. It is also where most of the State’s commercial forestry occurs, both native forests and plantations (ABARE and BRS 2001).

Socio-economic and demographic change is underway in many regional areas of Australia, as an increasing number of people move to these areas for lifestyle and other values, but with relatively few taking employment in agriculture or forestry. Because a growing proportion of landholders living in the rural eastern zone of NSW do not derive their income from the traditional primary industries, yet may have properties with considerable native forests, there is uncertainty about what motivates their land use and how to foster sustainable forest management. Also, these ‘new’ landholders are influencing the practices of the primary production industries that surround them. In some areas, such as the north coast of NSW, it appears that the prevailing community view of what is acceptable primary production is changing. Changes to the composition of rural communities and different values brought by landholders new to rural areas presents a challenge for government agencies, particularly those developing policies and programs to foster the sustainable management of natural resources.

In this paper, some of the challenges and opportunities for farmers and rural communities in changing social landscapes are reviewed. A method for analysing the relationship between rural land values and the estimated agricultural value of typical farms in a number of districts in New South Wales is then presented. The purpose is to present a method which may be used to generate data that may provide a means of interpreting underlying social values of landholders, and may be helpful in identifying changes in community values as a signal that approaches to private native forestry may also need to be adapted to accommodate an increasing number of landholders who are settling in regional areas for the aesthetic appeal of the landscape more so than the productive industries of agriculture and forestry.

Challenges For Farmers And Rural Communities

Understanding the social dimension of rural land use—the history, enterprises, challenges and aspirations of landholders—would seem important when developing policies to ensure sustainable management of private native forests. Since Europeans began clearing the ‘bush’ and ploughing the soil in Australia in the 1800s, Australian agriculture and its participants have continued to change (Pollard 2000). Not only are the methods of farming changing, but also who is doing the farming. Much has been written in recent years about the structural change in agriculture and the associated difficulties for rural communities (Lawrence 1987;

Alston 1991; Barr and Cary 1992; Vanclay and Lawrence 1995; Lawrence 1996; Pritchard and McManus 2000; Gray and Lawrence 2001; Cary et al. 2002; Vanclay 2003; Alston 2004; Barr et al. 2005).

Although there is a steady decline in the number of farmers nationally, of approximately 1–2% per annum over the past 20 years (ANRA 2001), Australian agriculture is still dominated by farm families (Alston 2004). Notably, there has been a growing income divide between wealthy and poor farmers in Australia, with the top 20% of farm business generating incomes over \$100,000 per annum (Gray and Lawrence 2001), yet the bottom 20% generating less than \$10,000 per annum (Garnaut et al. 1997; cited in Alston 2004). There has been a general decline in Australian farmers' terms of trade (ratio of index of prices received by farmers to index of prices paid by farmers) since the mid-1970s (ABARE 2005), although the viability of specific farming industries, regions and producers varies markedly (ANRA 2001).

While several analysts have predicted increasing market and environmental pressures for Australian farmers (e.g. Lawrence 2005), there is uncertainty about the most effective role and means for government to assist farm families and rural communities cope with increased pressure—even if they choose to exit the agricultural sector. For example, Botterill (2002) reported that the Australian government has made available financial assistance for those exiting farming for more than 30 years, viewed by some as an incentive to free up farmland for more efficient and productive landholders. Yet such economic incentives have not necessarily been effective for a segment of farmers who are largely motivated by non-economic factors (Botterill 2002). That is, despite low financial returns from agriculture, families may choose to remain on their farm for the lifestyle, or because they have opportunities to supplement their household income from off-farm sources (Vanclay 2003, 2004).

Diversification and innovation are often cited as a strategy for farmers to prosper; however, others are more circumspect arguing that major technological shifts in agriculture create winners and losers as the influence on agriculture change, such changing consumer demands and industry standards (ANRA 2001). Not all farm families have the same capacity to exploit the opportunities in agriculture, with major changes in agriculture sometimes bringing benefits to some and creating costs for others (Vanclay and Lawrence 1995). Barr (2001) reported that the increasing median age of farmers reflects the decline in the number of younger farmers and the delayed exit by older farmers; the median age of Australian farmers increased from 48 to 50 years during the years 1996–2001 (Barr 2005), with this trend more pronounced in some industries and landscapes. In contrast to the common scenario of rural decline, recent research by Barr et al. (2005) identified parts of rural Victoria where there is increasing demand for farmland for its amenity values, rather than for its agricultural potential. In an ironic twist, some small country towns originally established due to the agricultural potential of the district are now in 'amenity' landscapes, which may have a more secure future because of the prospects for 'lifestyle' residents and tourism (Barr et al. 2005).

In much of rural Australia, agriculture has an integral relationship with its rural communities, with the prosperity of both closely linked. A decline in the number of farm families often correlates to a decline in a small rural community's population. However, the change in population of rural communities does not always follow a simple linear relationship with farming numbers, as evidenced by the fact that 60% of Australian rural communities are expanding, particularly those within commuting distance to metropolitan centres, or in coastal and other scenic regions (Tonts 2000), as people move closer to health and educational services, improved employment opportunities and for enhanced lifestyles.

Not only have some rural towns increased in population, but they have also changed in composition, with new residents sometimes having quite different values and expectations to those of the original farming community (Bryant 1999; Barr et al. 2005). Passfield et al. (1996) observed that these changes create a post-modern rurality in which newcomers may even demand farmers change their practices so as not to impinge upon their ideals of rural life, perhaps denying the activities of production that have occurred for the previous century or more. Some rural towns and landscapes have seen resurgence in population in the past decade, particularly towns and farmland with high aesthetic qualities, and in proximity to capital cities (within two hours drive) and regional centres (1 h drive). Yet the changes in composition of rural communities and landscapes can be complex (Pannell et al. 2006). The social and economic restructuring that occurs in rural areas to suit the lifestyles and values of newcomers can lead to 'over-development', a process which has the capacity to undermine the attributes which made the countryside attractive (Tonts and Greive 2002).

The changing composition of rural communities and the way new landholders manage farmland and forests presents a challenge for public agencies developing policies and programs to foster the sustainable management of farmland and forests. Understanding the willingness and capacity of landholders to adopt recommended silviculture for the management of native forests can be difficult, with research across other disciplines indicating many factors likely to be involved in adoption of new practices (Vanclay 2004; Pannell et al. 2006). Some factors linked to the adoption of new practices by landholders are presented in Table 1.

Table 1 Factors linked to the adoption of new practices by landholders

Links that landholders have with others (e.g. engagement in local networks and organisations, proximity to other adopters and the source of information, and a trusted relationship between the landholder and the promoter of innovation).

Demographic attributes of landholders (e.g. reliance on off-farm income, age).

Relative advantage of new practices (e.g. improved viability of production system; impact on other aspects of farm business and lifestyle; consistency of new practices with lifestyles, beliefs and values).

Trialability of new practices (e.g. complexity of innovation, costs and risks of innovation, familiarity of innovation).

Source: Adapted from Pannell et al. (2006).

Emergence Of ‘Lifestyle’ Landscapes

During the past 150 years, the rural landscape in much of NSW was largely defined by primary production, namely cropping and livestock industries alone or in mixture, and commercial forestry in native and plantation forests. Until the late 1980s, most of the small towns and regional cities remained highly dependent on primary production for their prosperity.

Some emerging research indicates that in recent years, many of these same towns and regional cities are uncoupling from their dependence on primary production (i.e. are post-production landscapes). Pannell et al. (2006, p. 1417) reported that:

‘Regions within comfortable driving distance of major cities and regional centres in some Australian states (particularly New South Wales and Victoria) have seen social and demographic changes resulting from city dwellers purchasing what was formerly extensive farming land and pursuing their rural dreams. In these regions, traditional commercial agriculture has become a less important land-use than it once was, occupying a declining proportion of the land, and the trend in this direction will continue.’

The analysis of this socio-economic and demographic change is complex. There is some evidence that part of the aesthetic appeal of the rural landscape is the presence of viable production industries (agriculture and forestry), yet there is also a growing demand for small ‘lifestyle’ properties and to improve the environmental qualities of the region for residents and tourism—a demand for primary production to be modified to meet changing community expectations.

Social landscapes in rural areas

The Australian environment is often characterised by its native vegetation, land form and water bodies, creating the distinctive qualities for which Australia’s natural environment is world-renowned. In addition, the appearance of most catchments is strongly shaped by human activity (e.g. farming, urban development). That is, the landscape is as much defined by the people and their activities (the social landscape) as it is by the natural environment. It is increasingly accepted that optimising natural resource management requires an understanding of the social qualities of the landscape (e.g. people’s historical and current activities and their values, capacities and aspirations), as well as understanding the biophysical characteristics of the landscape (e.g. vegetation types, soils). Most agencies related to forestry management and natural resource management have a strong knowledge base of the biophysical qualities of catchments, yet comparatively little knowledge of the social dimensions that underpin private land use including private native forestry, although this situation is changing (e.g. Byron et al. 2004; Curtis et al. 2005).

Social values are ethical ideals and central beliefs of an individual or society, formed out of a social process of dialogue and debate and shaped by the social, cultural, historical and geographical relationships between society and its individuals. Values play an important role in shaping an individuals behaviour. However, it

is widely recognised that an adherence to prevailing beliefs and values is often expedient or pragmatic rather than deeply held, and human values can change over time as they are contested or people are influenced by others or new experiences (Bannock et al. 1972; Jary and Jary 2000; O'Brien 2003; Maybery et al. 2005).

Values may be intrinsic (i.e. an entity has value in its own right), functional (e.g. the technical contribution of soil nutrients, for example, on plant growth), or instrumental (the means of achieving a purpose related to an end value, usually related to human needs and wants) (Lockwood 1997; Winter 2005). Two categories of forest values held by people have been identified: biocentric values (i.e. intrinsic values) and anthropocentric values (i.e. instrumental values). Anthropocentrism means 'people centred' whereas the biocentric (or ecocentric) is concerned with the effect of environmental damage on all living things (McFarlane and Boxall 2000; Schultz et al. 2000). Lockwood (1999) further distinguished the values 'held' by people, which are principles or ideas important to people such as justice and responsibility, from 'assigned' values, resulting from the values that people attach to things, whether they be goods, activities, or services. He also distinguished between 'beliefs', which are the set of values held by a person, and 'cognitions', which are the understandings that people have of functional values. Values are important in relation to decisions about the use and conservation of natural resources, because they underpin specific beliefs and attitudes, influence norms and behavioural intentions, and motivate action and behaviour (Stein et al. 1999; Winter 2005).

Values held by landholders in social landscapes

A common component of landscape change is the movement of urban people as permanent or seasonal residents into rural areas, with subsequent influence on the management of nearby public and private land, including increased emphasis on the restoration of human-impacted natural areas (Dwyer and Childs 2004). Landscape change is particularly evident in the rural amenity areas in the United States, where 'hotspots' of change are often associated with the development of residential and recreational enclaves, particularly when seasonal residences are converted to permanent status as the owners retire or move their employment to the area (Stynes et al. 1997; cited in Dwyer and Childs 2004).

New settlers in rural areas invariably interact with the existing residents, even if from different social spheres. For example, the proportion of hobby and part-time farmers is increasing in many European countries, and for many of these people, agricultural production is less important than other landscape functions (Busck 2002). This means that people with different values must negotiate over agricultural and forestry resources in order to achieve a shared understanding of their use, which involves social construction and reconstruction of socio-environmental spaces (Woodgate and Redclift 1998). Willingness to pay for development and conservation trade-offs in rural communities differs according to length of residency; for example, there is some evidence that recently arrived residents (i.e. new settlers) have a higher willingness to pay for the preservation of rural scenic values than longer-term residents (Johnston et al. 2003).

Many forested landscapes in the United States have undergone landscape change and have complex patterns of land ownership, in which there is a mix of individual private land owners, commercial owners of industrial forestlands, and multiple-use orientated managers of public forestlands. These groups collectively have wide ranging values, beliefs, motivations and management capabilities, which contribute to a diverse physical and social environment (Stanfield et al. 2002; Bergmann and Bliss 2004). For example, surveys of non-industrial private forest owners in north-east states of the USA revealed that most respondents purchased their land rather than inheriting it, and the main reasons for acquisition were privacy, to live there, and conservation to prevent development (Belin et al. 2005). Cooperation across ownership boundaries is important to most conservation pursuits in landscapes with mixed ownerships. In the case of the use of fire as a forest management tool, public and private land managers may face the same biophysical factors yet differ in their ability to accept the risk of this practice (Bergmann and Bliss 2004).

Farmers cannot be conceived as a homogenous group with identical values and practices, and in reality they can place different emphases on the production and conservation aspects of agricultural land management (Vanclay and Lawrence 1995; Vanclay et al. 1998; Beedell and Rehman 1999; Busck 2002; Mesiti and Vanclay 2006). A study of landholders in southern New South Wales (Mayberry et al. 2005) found that the values of individual farmers can be classified into three distinct groups, namely economic, conservation and lifestyle landholder values. Though the findings suggested some conceptual overlap of ‘conservation’ with ‘lifestyle’ values, there was clearer separation of the ‘economic’ values from the ‘conservation’ values of landholders (Mayberry et al. 2005). A case study in Western Australia suggested that there has been a shift in the values of farmers over the past few decades, leading to a greater responsiveness to management solutions that include environmental considerations (Ridley 2004). However, results of a survey of preferences for management of natural areas between the general public, environmentalists and farmers showed a polarization of views between environmentalists and farmers (Winter 2005).

Barr et al. (2005) drew on a wide range of variables (e.g. level of agricultural production, number of farmers exiting agriculture) at a Statistical Local Area (SLA) level to develop a stylized map of Victoria showing trends in selected variables. While acknowledging the flaws of representing a single SLA as a homogeneous entity, Barr et al. (2005) identified ‘production’, rural amenity’, ‘transitional’ and ‘irrigation’ landscapes, and argued that the map provides a useful tool for understanding the broad social trends in rural Victoria.

The shift from ‘production’ to ‘lifestyle’ landscapes reflects a transition in forestry from a production industry to a service industry—a profound change that is likely to require different approaches to forest development and management. For example, people moving into lifestyle landscapes are likely to appreciate native forest for the environmental services and aesthetic values it provides. Given the long-term production cycle of native forests, where the impacts of decisions about silviculture may take many decades before the desired outcomes are achieved, a method for predicting the socio-economic and demographic change in landscapes

would be valuable for forest managers and forest resource stakeholders to ensure private native forestry reflects community expectations.

Differential between land values and the value of land for agriculture: a method for identifying new landscapes

Landholders own and manage rural land for a wide range of economic, socio-cultural and historical reasons, and have considerable variation in their behaviour, capacity and aspirations. It is difficult to understand clearly the underlying motivations of thousands of landholders with native forests in the eastern zone of NSW, even more given that the rate of change in property ownership in rural areas can be 5% of properties sold per year (Curtis et al. 2005). The commercial value of rural properties is a transparent indicator in the market of the underlying potential of the land and of aspirations of landholders in regard to its use. In NSW, the Valuer General's Office provides estimates of the land value for typical grazing properties for a large number of localities in the state (NSW Lands 2006). This is a useful guide to trends in the rural land market.

It is argued that by calculating the differential between the estimated land value and the expected production value of the land under a common production system for the agricultural locality, an indication of whether landholders reside in a 'production' or a 'lifestyle' landscape is provided. That is, where there is a large differential between the estimated land value and the estimated primary production value, it is likely that landholders live within a 'lifestyle' landscape in which farmland is being purchased for both farming and non-farming purposes.

Research that has sought to explain fluctuations in farmland prices in recent decades has centred on capital asset pricing theory, which examines the extent to which the prices for financial assets (e.g. farmland) can be explained in terms of a rational evaluation of current and expected income from the asset. In its simplest terms, this theory assumes that buyers of farmland are risk neutral, discount the future at a constant rate, act competitively, and value land only for its economic return or rent. If these relationships hold, the value of land today can be represented as the present value of the expected future income or rent (lease) payments (Alston 1986; Burt 1986; Clark et al. 1993; Huang et al. 2006). Under this model, if the profitability of one type of agricultural use decreases, then the value of land for this use declines.

For this study, the income expected from farming was estimated for a typical grazing property in selected localities in NSW. This was done by using the figures for property size, land-use and carrying capacity of the 'typical' grazing property in a locality (as determined by professional independent property valuers for NSW Lands (NSW Lands 2006), and applying the gross margin returns of 'best practice' operations for the main farm enterprise of a locality (NSW DPI 2006). These data were then adjusted by deducting farm overhead costs derived for a comprehensive survey of farm enterprises in south-west Victoria (reported by DPI 2005), to estimate net farm income from a single-enterprise operation. This index does not include an allowance for owner-operator labour, interest, tax, and principal

repayments, but is believed to be useful for illustrating the relative agricultural performance of typical farms in different agricultural regions. Calculations of indicative net farm incomes in eight rural localities of the eastern zone of NSW where beef cattle (four localities) and wool-prime lamb (four localities) are common enterprises are presented in Table 2. These localities have been assessed as capable of supporting commercial forestry (ABARE and BRS 2001), but is not evaluated financially here.

The calculated ‘enterprise income’ is derived from the gross margins for beef cattle of \$200.39 per steer for ‘young cattle’ (bought at 160 kg, grown for 12 months, sold at 340 kg to feedlots, including pasture costs) and for sheep (wool and lamb production) of \$21.44 per DSE (including fodder costs) (sourced from NSW DPI 2006). The calculated enterprise income was then multiplied by a factor of 0.7, the average ratio of net farm income to gross margin income for the period 2000–2001 to 2004–2005 for farm enterprises in south-west Victoria (DPI 2005), to estimate the ‘net farm income in 2005’ for the typical farm in each of the eight localities. A real discount rate of 5% was applied to the

Table 2 Indicative farm size, carrying capacity, estimated farm income and land value in selected rural localities, New South Wales

Locality	Farm area (ha)	Farm carrying capacity ^a	Estimated net farm income in 2005 (\$/farm) ^b	Index of agricultural land value (\$/farm) ^c	Land value in 2005 (\$/farm)	Index of agricultural land value as a proportion of property land value (%)
Nowra	58	60 cattle	\$8,412	\$0.17 M	\$1.22 M	14
Bega	379	200 cattle	\$28,039	\$0.56 M	\$1.05 M	53
Orange	238	3,000 DSE ^d	\$44,999	\$0.90 M	\$1.35 M	67
Crookwell	325	2,400 DSE	\$36,000	\$0.72 M	\$1.00 M	72
Tumut	606	5,000 DSE	\$74,999	\$1.50 M	\$2.06 M	73
Lismore	69	75 cattle	\$10,515	\$0.21 M	\$0.26 M	82
Oberon	191	2,400 DSE	\$36,000	\$0.72 M	\$0.77 M	94
Kempsey	472	320 cattle	\$44,863	\$0.90 M	\$0.49 M	182

Notes:

Farm statistics and land value in 2005 sourced from NSW DPI (2006) and NSW Lands (2006).

^a Farm carrying capacity expressed in the unit for a locality’s common enterprise (i.e. ‘cattle’ = beef cattle or ‘DSE’ = wool-prime lamb).

^b Estimated farm income is enterprise gross margin multiplied by 0.7.

^c Index of agricultural land value derived as the present value of estimated net farm income in perpetuity using a real discount rate of 5%.

^d Dry Sheep Equivalent (DSE), defined as the number of 50 kg wether sheep that can be maintained at a constant weight over 12 months.

estimated net farm income, on the basis that the nominal cost of finance for a farm business is about 8% (Holmes Sackett and Associates 2006) and recent and expected inflation is in the order of 2.6–3.0% (Reserve Bank of Australia 2006). The present value of the estimated net farm income was thus determined, to represent an index of the relative value of agricultural land in perpetuity. This index of agricultural land value represents a theoretical construct of relative farm economics at one point in time, and is not necessarily related to land market price.

Using the assumptions outlined above, the figures presented in Table 2 suggest a large differential between the estimated land value and the index of agricultural land value in the localities of Nowra and Bega, to the extent that land values appear to be beyond reach of a viable agricultural enterprise. On the other hand, the index of relative value for the locality of Kempsey suggest that the estimated land value is a true reflection of its value for agricultural use. The implication is that many farm families in the Kempsey locality could reasonably be expected to derive a substantial proportion of their household income from agriculture, and so are likely to be motivated to invest in land-use options that increase their farm incomes.

Bearing in mind that estimates of farm incomes based on ‘typical’ costs and returns need to be treated with caution, because farm incomes are inherently volatile from year to year (DPI 2005; Martin et al. 2006), the financial estimates for localities other than Nowra and Bega suggest that agriculture is a competitive mainstream land use. However, it is noteworthy that the estimated land values as provided by NSW DPI for typical farms in 2005 are \$3,400/ha for Tumut (an increase of 35% from 2004), \$4,020/ha for Oberon (20% increase), and \$5,670/ha for Orange (50% increase), in line with sharp increases in the prices of broadacre farms across Australia over the same period (as reported by Martin et al. 2006). The general increase in land values has resulted from a number of factors including higher farm incomes, historically low interest rates, a positive outlook for future industry returns, and a steady increase in demand for land by urban people seeking a rural lifestyle and investment (Martin et al. 2006).

It is unlikely that a net farm income below around \$40,000 per annum could sustain a typical household (with two adults and two dependents) in the longer term. Where the net farm income is appreciably below this level, sources of off-farm income are likely to be important to the household. Thus, where net farm income is below \$15,000 per annum, as indicated for a typical farm in the Lismore locality (Table 2), income from agriculture may well be a minor source of household income – indicating a lifestyle landscape.

In some localities in the eastern zone of NSW, including Bega and Nowra, the value of rural land has risen well beyond its estimated agricultural value. In such localities, it is likely that an increased area of rural land is being purchased by people who want small properties and don’t operate as farmers, some deriving their income from employment in towns or major cities within commuting distance. Although these landholders may not be dependent on agriculture for their livelihoods, it appears they still value highly the ‘agricultural’ landscape—even if just for its aesthetic quality.

Discussion

Caution is needed when interpreting peoples' attitudes and values as a means of understanding their behaviour, because a complex range of socio-economic, cultural and personal factors can cause an apparent inconsistency between peoples' attitudes and their behaviour (Vanclay and Lawrence 1995; Cary et al. 2002; Vanclay 2004; Pannell et al. 2006). For example, a positive stewardship ethic may not be evident if a forest owner is constrained by the high cost of implementing recommended silviculture, even if they agree with the advice. Also, while the values of forest owners may be consistent with long-term sustainable forest management, the prevailing market conditions may encourage a more short-term view, such as opportunistic large-scale harvesting.

In many respects, there is a wealth of information to assist landholders to design, establish and manage forests in a way that is integrated within landscapes and farming businesses. However, the theoretical or real design of integrated farm forests or well-managed native forests may not be consistent with market signals. Therefore, the recommended silviculture for private native forests needs to bridge social values with market realities in the context of changing demographics amongst the population of landholders, particularly in the case of the eastern zone of NSW.

In 'production' landscapes, emphasis on uniform silviculture and economies of scale remain powerful drivers of private forestry designed to be financially profitable for the grower. In contrast, these market signals may be inconsistent with the aspirations of the landholders with native forests in 'lifestyle' landscapes. Indeed, in 'lifestyle' landscapes, bank advisors can issue lower property valuations for properties with uniform large-scale plantations, due to the perception that plantations restrict alternative land uses and offer benefits to a smaller number of buyers.

On the basis that recent sharp increases in land values in some districts indicate that people are purchasing rural properties largely for non-production reasons, landholders may be more likely to be interested in forestry with multiple values of both timber products and environmental services. Furthermore, the presence of well-managed native forests that are integrated into individual properties and the wider landscape may increase the market value of properties, and hence represent a prudent business investment.

Recognising that 'lifestyle' landscapes are emerging, forest policies and programs are required to acknowledge that a new generation of landholders may wish to pursue private native forestry for objectives outside the historical commercial norm. Coupled with this, the contribution of private native forests to the hardwood timber sector remains important to regional economies. An approach for predicting the shift in community values, such as an increasing number of properties in a region with a marked discrepancy between the agronomic value and land value (i.e. land value exceeding agronomic value) as outlined above, would seem beneficial to long-term planning and management of private native forests, to ensure private owners of these resources contribute to a viable regional industry.

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